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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|--|-------------|----------------------|---------------------|------------------|
| 09/581,264 | 06/28/2000 | LUCIO DE ANGELIS | 192784US2PCT | 5066 |
| 22850 | 7590 | 12/17/2002 | EXAMINER | |
| OBLON SPIVAK MCCLELLAND MAIER & NEUSTADT PC FOURTH FLOOR 1755 JEFFERSON DAVIS HIGHWAY ARLINGTON, VA 22202 | | | CROSS, LATOYA I | |
| | | ART UNIT | | PAPER NUMBER |
| | | 1743 | | |

DATE MAILED: 12/17/2002

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Please find below and/or attached an Office communication concerning this application or proceeding.

| | | |
|------------------------------|------------------------|---------------------|
| Office Action Summary | Application No. | Applicant(s) |
| | 09/581,264 | DE ANGELIS |
| | Examiner | Art Unit |
| | LaToya I. Cross | 1743 |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) Responsive to communication(s) filed on 03 October 2002.

2a) This action is **FINAL**. 2b) This action is non-final.

3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) Claim(s) 1-5 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) Claim(s) 1 and 2 is/are allowed.

6) Claim(s) 3 and 4 is/are rejected.

7) Claim(s) 5 is/are objected to.

8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) The specification is objected to by the Examiner.

10) The drawing(s) filed on _____ is/are: a) accepted or b) objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11) The proposed drawing correction filed on _____ is: a) approved b) disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12) The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a) All b) Some * c) None of:

1. Certified copies of the priority documents have been received.
2. Certified copies of the priority documents have been received in Application No. _____.
3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) The translation of the foreign language provisional application has been received.

15) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

| | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ | 6) <input type="checkbox"/> Other: _____ |

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DETAILED ACTION

This Office Action is in response to Applicants' amendment filed October 3, 2002 and entered as Paper No. 4. Claims 1-5 are pending.

Withdrawal of Rejections from Previous Office Action

- The rejection of claim 3 under 35 USC 102 over Williams et al is withdrawn in view of Applicants' argument that a "series" of sensors is not disclosed in the reference.
- The rejection of claims 1-3 under 35 USC 112, second paragraph is withdrawn in view of Applicants' amendment to better clarify the invention.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 3 and 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Williams et al '662 in view of US Patent 5,573,728 to Loesch et al.

Williams et al '662 teach a gas sensor for sensing ozone, as well as carbon monoxide, hydrocarbons, hydrogen and ethanol (col. 4, lines 15-20). The sensor comprises a metal oxide substrate (70) having metallic electrodes (72) on one of its sides. On the other side of the substrate, a heating element (78) is disposed (col. 8, lines 11-17). The electrodes are metallic material such as platinum (col. 8, lines 40-42). The sensor may be disposed in housing (94).

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The housing contains a cap (102) fitting around the outer wall of the sensor and having slots which allow gases to be admitted. The slot-containing cap is equivalent to Applicants' membrane. Regarding the thickness of the sensing layer, Williams et al '662 teach that the thickness is preferably 40 microns (col. 10, lines 23-26). Further provided is a resistance measuring circuit (124) for processing the sensor output signals and producing output signals representing the sensor resistance. This resistance measuring circuit is equivalent to Applicants' electronic evaluation system.

Williams et al '662 disclose at col. 8, lines 50-54 that the sensing substrate may be made of any suitable metal oxide. However, Williams et al '662 fail to specially teach tin oxide.

Loesch et al '728 teach a gas sensing device similar to that disclosed by Williams et al '662. The device contains a semiconductor element (4) and a heating element (2). Metal electrodes of platinum are disposed on one side of the element. As the semiconductor element, Loesch et al '728 teach the use of tin oxide (col. 8, lines 53-57). It would have been obvious to one of ordinary skill in the art to use tin oxide as the sensing element of the device of Williams et al '662, to provide a device which is sensitive to the presence of gas and provide an indication of such.

Williams et al also fail to teach a series of sensors. It would have been obvious to one of ordinary skill in the art to use a series of series to allow for more than one test to be performed simultaneously. Multiple sensors will also allow the user to have more readings and thus, more accurate conclusions of the tests will result.

Therefore for the reasons set forth above, Applicants' claimed invention is deemed to be obvious, within the meaning of 35 USC 103 in view of the teachings of Williams et al and Loesch et al.

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Allowable Subject Matter

3. Claims 1 and 2 are allowed.
4. Claim 5 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The prior art of record does not teach or suggest the use of metal oxide sensing element having a heating element for determining the presence of MTBE, wherein one sensing element is disposed in the ground and another disposed in the air, and wherein a comparison of the resistance variations is used to determine the presence of MTBE.

Response to Arguments

5. Applicant's arguments filed October 3, 2002 have been fully considered but they are not persuasive. Applicants first argue with respect to the Williams' reference that the reference teaches determining the presence of ozone, but fails to teach determining MTBE vapors. In response, claims 3 and 4 are directed to apparatuses. Apparatus claims are defined by their structures, not function. Functional limitations, such as what the device does, are not given patentable weight. See MPEP 2114. Applicants further argue that the Williams' reference fails to teach a heater to bring the temperature within the range of 300 – 500°C. Applicants' attention is pointed to col. 3, lines 60-63, where Williams teaches that the sensor is heated to a range of ambient temperature to 600°C, typically 400°C. Still further Applicants' argue that the reference fails to teach using a series of sensors. As stated above, using a series of sensor would be an obvious modification since a series of sensors would allow multiple tests to be run simultaneously and allow several reading to make the results more conclusive.

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6. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to LaToya I. Cross whose telephone number is 703-305-7360. The examiner can normally be reached on Monday-Friday 8:30 a.m. - 5:00 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jill A. Warden can be reached on 703-308-4037. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9310 for regular communications and 703-872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.

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December 16, 2002


Jill A. Warden
Supervisory Patent Examiner
Technology Center 1700